

CLAIMS

1. A data update system comprising:

an apparatus that executes a program of performing a predetermined function; and

a data supply device connected to said apparatus via
5 a network, that possesses a plurality of expansion data that expands a function of said apparatus and transmits said expansion data to said apparatus;

wherein said apparatus includes:

a data storage unit that stores said program;

10 a receiving unit that receives said expansion data for expanding said function from said data supply device;

an update unit that stores said expansion data received by said receiving unit in said data storage unit, thus to add a new program or update said program;

15 a decision unit that decides whether a condition that permits accepting said expansion data is satisfied;

a password storage unit that stores a password associated with said plurality of expansion data acquirable under each said condition, to be used when
20 receiving said expansion data from said data supply device; and

a password output unit that makes access to said password storage unit and obtains said password for said expansion data corresponding to said decided condition,
25 to output said obtained password to a user; and

said data supply device includes:

a table storage unit that stores a table in which said plurality of expansion data and said password are associated;

30 a password acceptance unit that accepts an input of said password by said user;

a presentation unit that makes access to said table storage unit, to thereby obtain said plurality of expansion data corresponding to said password accepted by said
35 password acceptance unit and present said expansion data to said user;

a selection acceptance unit that accepts said expansion data selected by said user out of said plurality of expansion data presented by said presentation unit; and

40 a transmission unit that reads out said expansion data accepted by said selection acceptance unit from said expansion data storage unit, and transmits said expansion data to said apparatus via said network.

2. The data update system according to claim 1,

wherein said apparatus includes an issued password storage unit that stores said password output by said password output unit;

5 said transmission unit of said data supply device transmits said password accepted by said password acceptance unit together with said expansion data;

said receiving unit of said apparatus receives said

password from said data supply device together with said
10 expansion data;

said update unit of said apparatus makes access to
said issued password storage unit, and stores said
expansion data received by said receiving unit in said data
storage unit, when said password received by said receiving
15 unit is stored in said issued password storage unit, thus
to add a new program or update said program.

3. The data update system according to claim 1 or 2,
comprising:

a time table storage unit that stores at least one
password corresponding to a utilization time of said
5 apparatus; and

a timer that measures said utilization time of said
apparatus;

wherein said password output unit makes access to
said time table storage unit to obtain said at least one
10 password corresponding to said utilization time of said
apparatus measured by said timer, and outputs said
password.

4. The data update system according to claim 1-3,
wherein said apparatus includes:

a state table that contains at least an inner state
of said apparatus associated with said password, and

5 a state monitor unit that monitors said inner state

of said apparatus; and

said password output unit makes access to said state table to obtain said password corresponding to said inner state of said apparatus monitored by said state monitor unit, and outputs said password.

5. The data update system according to claim 1-4, wherein said data supply device includes:

an encryption key calculation unit that calculates an encryption key based on said password accepted by said password acceptance unit, and

an encryption unit that reads out and encrypts said expansion data accepted by said the selection acceptance unit from said data storage unit with said encryption key calculated by said encryption key calculation unit;

said transmission unit of said data supply device transmits said expansion data encrypted by said encryption unit to said apparatus via said network;

said apparatus includes:

a decryption key calculation unit that calculates a decryption key based on said password stored in said issued password storage unit, and

a decryption unit that decrypts said expansion data received by said receiving unit with said decryption key calculated by said decryption key calculation unit; and

said update unit of said apparatus stores said expansion data decrypted by said decryption unit in said

data storage unit, thus to add a new program or update said program.

6. The data update system according to claim 1-5, wherein said apparatus includes:

an identification unit that identifies a user,

a registered member table on which a user authorized
5 to receive a password is registered, and

a judgment unit that makes access to said registered member table to judge whether said user identified by said identification unit is included in said registered member table; and

10 said password output unit of said apparatus outputs said password when said judgment unit judges that said user is included in said registered member table.

7. The data update system according to claim 1-6, wherein said apparatus includes:

a function completion table that contains a parameter indicating completion of utilization of a specific

5 function generated in said apparatus in correlation with said password output when said utilization of said specific function is completed, and

a function completion check unit that makes access to said function completion table to monitor said
10 completion of utilization of said specific function generated in said apparatus, and obtains said

corresponding password when said completion of utilization is confirmed; and

15 said password output unit of said apparatus outputs said password obtained by said function completion check unit.

8. The data update system according to claim 7, wherein said apparatus includes said function completion table for each type of said plurality of functions; and

5 said function completion check unit monitors completion of utilization of each of said plurality of functions performed in said apparatus, identifies a type of said function the utilization of which is confirmed to have been completed, and makes access to said function completion table corresponding to said identified type of
10 said function.

9. The data update system according to claim 1-8, comprising:

 a terminal device connected to said external apparatus via said network, including:

5 an acceptance unit that accepts an input of said password or selection of said expansion data, and

 a transmission unit that transmits said input password or said selected expansion data accepted by said acceptance unit to said external apparatus via a network;

10 wherein said data supply device includes a receiving unit that receives via said network said input password or said selected expansion data transmitted by said terminal device;

 said password acceptance unit of said data supply
15 device accepts an input of said password received by said receiving unit; and

 said selection acceptance unit of said data supply device accepts said selection of said expansion data received by said receiving unit.

10. The data update system according to claim 9,

 wherein said presentation unit of said data supply device includes an instruction unit that instructs a screen display of said plurality of expansion data to said
5 terminal device via said network; and

 said terminal device includes:

 an instruction acceptance unit that accepts via said network an instruction to display said screen from said instruction unit of said data supply device, and

10 a display unit that displays said screen presenting said plurality of expansion data according to said instruction to display said screen accepted by said instruction acceptance unit.

11. A robot apparatus comprising:

 a data storage unit that stores a program of

performing a predetermined function;

an execution unit that executes said program;

5 a communication unit including at least one of a sound generator and an image display unit;

a receiving unit that receives expansion data that expands said function from a data supply device;

an update unit that stores said expansion data
10 received by said receiving unit in said data storage unit thus to add a new program or modify said program;

a decision unit that decides whether a condition that permits accepting said expansion data is satisfied;

a password storage unit that stores a password
15 associated with said plurality of expansion data acquirable under each such condition, to be used when receiving said expansion data from said data supply device; and

a password acquisition unit that makes access to said
20 password storage unit and obtains said password for said expansion data corresponding to said decided condition;

wherein said password obtained by said password acquisition unit is output to a user via said communication unit.

12. The robot apparatus according to claim 11,
comprising:

an issued password storage unit that stores said password obtained by said password acquisition unit;

5 wherein said transmission unit of said data supply device transmits said password accepted by said password acceptance unit together with said expansion data;

 said receiving unit receives said password from said data supply device together with said expansion data; and

10 said update unit makes access to said issued password storage unit, and stores said expansion data received by said receiving unit in said data storage unit, when said password received by said receiving unit is stored in said issued password storage unit, thus to add a new program
15 or update said program.

13. The robot apparatus according to claim 11 or 12, comprising:

 a time table storage unit that stores at least one password corresponding to a utilization time of said robot
5 apparatus, and

 a timer that measures said utilization time of said apparatus;

 wherein said password acquisition unit makes access to said time table storage unit to obtain said at least
10 one password corresponding to said utilization time of said apparatus measured by said timer, and outputs said password.

14. The robot apparatus according to claim 11-13, comprising:

a state table that contains at least an inner state of said robot apparatus associated with said password; and

5 a state monitor unit that monitors said inner state of said robot apparatus;

wherein said password acquisition unit makes access to said state table to obtain said password corresponding to said inner state of said robot apparatus monitored by
10 said state monitor unit.

15. The robot apparatus according to claim 11-14, comprising:

a decryption key calculation unit that calculates a decryption key based on said password stored in said issued
5 password storage unit; and

a decryption unit that decrypts said expansion data received by said receiving unit with said decryption key calculated by said decryption key calculation unit;

wherein said update unit stores said expansion data
10 decrypted by said decryption unit in said data storage unit, thus to add a new program or update said program.

16. The robot apparatus according to claim 11-15, comprising:

an identification unit that identifies a user;

a registered member table on which a user authorized
5 to receive a password is registered; and

a judgment unit that makes access to said registered

member table to judge whether said user identified by said identification unit is included in said registered member table;

10 wherein said password acquisition unit obtains said password when said judgment unit judges that said user is included in said registered member table.

17. The robot apparatus according to claim 16, comprising:

 a user image recording unit that records first image information of said user registered in said registered
5 member table;

 wherein said identification unit includes an imaging unit that images of said user;

 said judgment unit compares second image information of said user imaged by said imaging unit with said image
10 information stored in said user image recording unit, thus to judge whether those image information are matched with each other; and

 said password acquisition unit obtains said password when said comparison unit judges that those image
15 information are matched with each other.

18. The robot apparatus according to claim 11-17, comprising:

 a function completion table that contains a parameter indicating completion of utilization of a specific

5 function generated in said robot apparatus in correlation with said password output when said utilization of said specific function is completed; and

a function completion check unit that makes access to said function completion table to monitor said
10 completion of utilization of said specific function generated in said apparatus, and obtains said corresponding password when said completion of utilization is confirmed;

wherein said password acquisition unit outputs said
15 password obtained by said function completion check unit.

19. The robot apparatus according to claim 18, comprising:

said function completion table for each type of said plurality of functions;

5 wherein said function completion check unit monitors completion of utilization of each of said plurality of functions performed in said robot apparatus, identifies a type of said function the utilization of which is confirmed to have been completed, and makes access to said
10 function completion table corresponding to said function of said identified type.

20. A data supply device comprising:

a connector for connection via a network to an apparatus that executes a program of performing a

predetermined function;

5 an expansion data storage unit that stores a plurality of expansion data that expands a function of said apparatus;

 a table storage unit that stores a table on which said plurality of expansion data and said password are
10 associated with each other;

 a password acceptance unit that accepts an input of said password by a user;

 a presentation unit that makes access to said table storage unit to obtain said plurality of expansion data
15 corresponding to said password accepted by said password acceptance unit, and presents said expansion data to said user;

 a selection acceptance unit that accepts said expansion data selected by said user out of said plurality
20 of expansion data presented by said presentation unit; and

 a transmission unit that reads out said expansion data accepted by said selection acceptance unit from said expansion data storage unit, and transmits said expansion data to said apparatus via said network.

21. A data update method of controlling a data structure of an apparatus by transmitting, via a network, expansion data from a data supply device including an expansion data storage unit that stores a plurality of expansion data,
5 to said apparatus including a data storage unit that stores

a program that performs a predetermined function and an execution unit that executes said program, comprising:

deciding, in said apparatus including a password storage unit that stores a password, associated with said plurality of expansion data acquirable under each condition that permits accepting said expansion data and to be used when receiving said expansion data from said data supply device, whether said condition is satisfied;

making access to said password storage unit and obtaining said password for said expansion data corresponding to said decided condition; and

outputting to a user said password obtained at said step of obtaining said password;

accepting, in said data supply device including a table storage unit that stores a table on which said plurality of expansion data and said password are associated with each other, an input of said password by said user;

making access to said table storage unit and obtaining said plurality of expansion data corresponding to said password accepted by said password acceptance unit;

presenting said plurality of expansion data to said user;

accepting said expansion data selected by said user out of said presented plurality of expansion data; and

reading out said accepted expansion data from said expansion data storage unit, and transmitting said

expansion data to said apparatus via said network;

receiving, in said apparatus, said expansion data
35 that expands said function from said data supply device;
and

storing said received expansion data in said data
storage unit, thus adding a new program or updating said
program.

22. A robot system comprising:

a robot apparatus that executes a program of
performing a predetermined function; and

a data supply device connected to said robot
5 apparatus via a network, that possesses a plurality of
expansion data that expands a function of said robot
apparatus and transmits said expansion data to said robot
apparatus;

wherein said robot apparatus includes:

10 a data storage unit that stores a program of
performing a predetermined function;

an execution unit that executes said program;

a communication unit including at least one of a sound
generator and an image display unit;

15 a receiving unit that receives expansion data that
expands said function from a data supply device;

an update unit that stores said expansion data
received by said receiving unit in said data storage unit
thus to add a new program or update said program;

20 a decision unit that decides whether a condition that permits accepting said expansion data is satisfied;

 a password storage unit that stores a password associated with said plurality of expansion data acquirable under each such condition, to be used when
25 receiving said expansion data from said data supply device;

 a password acquisition unit that makes access to said password storage unit and obtains said password for said expansion data corresponding to said decided condition; and

30 a password output unit that outputs said password obtained by said password acquisition unit to said user via said communication unit; and

 said data supply device includes:

 a table storage unit that stores a table on which said
35 plurality of expansion data and said password are associated with each other;

 a password acceptance unit that accepts an input of said password by a user;

 a presentation unit that makes access to said table
40 storage unit to obtain said plurality of expansion data corresponding to said password accepted by said password acceptance unit, and presents said expansion data to said user;

 a selection acceptance unit that accepts said
45 expansion data selected by said user out of said plurality of expansion data presented by said presentation unit; and

a transmission unit that reads out said expansion data accepted by said selection acceptance unit from said expansion data storage unit, and transmits said expansion data to said robot apparatus via said network.

23. A data update program for updating data of an apparatus by transmitting, via a network, expansion data from a data supply device possessing a plurality of expansion data that expands a function of said apparatus, to said apparatus including a data storage unit that stores a program that performs a predetermined function and an execution unit that executes said program,

said data update program including:

a program that allows said apparatus including a password storage unit that stores a password, associated with said plurality of expansion data acquirable under each condition that permits accepting said expansion data and to be used when receiving said expansion data from said data supply device, to execute steps of:

deciding whether said condition is satisfied;

making access to said password storage unit to obtain said password for said expansion data corresponding to said decided condition; and

outputting to a user said password obtained in the obtaining step,

a program that allows said data supply device including a table storage unit that stores a table on which

said plurality of expansion data and said password are associated, to execute steps of:

25 accepting an input of said password by said user;
 making access to said table storage unit to obtain
said plurality of expansion data corresponding to said
password accepted in the accepting step;

 presenting said plurality of expansion data to said
30 user;

 accepting said expansion data selected by said user
out of said presented plurality of expansion data; and

 reading out said accepted expansion data from said
expansion data storage unit, to transmit said expansion
35 data to said apparatus via said network, and

 a program that allows said apparatus to execute steps
of:

 receiving said expansion data that expands said
function from said data supply device; and

40 storing said received expansion data in said data
storage unit, thus to add a new program or update said
program.